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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,015	03/30/2004	Seung Wan Chae	2336-255	2799
7590	08/25/2005			
LOWE HAUPTMAN GILMAN & BERNER, LLP			EXAMINER	
Suite 310			VU, HUNG K	
1700 Diagonal Road			ART UNIT	PAPER NUMBER
Alexandria, VA 22314			2811	

DATE MAILED: 08/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/812,015	CHAE, SEUNG WAN	
	<b>Examiner</b>	Art Unit	
	Hung Vu	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 16 June 2005.

2a)  This action is FINAL.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 1-32 is/are pending in the application.  
4a) Of the above claim(s) 13-32 is/are withdrawn from consideration.  
5)  Claim(s) \_\_\_\_\_ is/are allowed.  
6)  Claim(s) 1-12 is/are rejected.  
7)  Claim(s) \_\_\_\_\_ is/are objected to.  
8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/30/04, 6/13/05.  
4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election with traverse of Invention of Group I, Claims 1-12, in the reply filed on 06/16/05 is acknowledged. The traversal is on the ground(s) that the Examiner has failed to demonstrate why the hypothetical processes mentioned in page 2, line 4 from bottom, of the Restriction Requirement can be regarded as materially different processes, and that the search and examination of the entire application can be made without serious burden on the Examiner. This is not found persuasive because other techniques can be used instead of growing (see the Restriction Requirement). Further, it is well settled that related inventions are restrictable if it is shown that these inventions distinct. It was clearly established that these inventions are in fact distinct.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 13-32 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 06/16/05.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 – 6, 8 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Orita et al. (PN 6,117,700).

Orita et al. discloses, as shown in Figures 2 and 9, a GaN-based semiconductor light emitting diode comprising:

- a substrate (11) on which a GaN-based semiconductor material is grown;
- a lower clad layer (14) formed on the substrate, and made of a first conductive GaN semiconductor material (n-type);
- an active layer (15) formed on a designated portion of the lower clad layer, and made of an undoped GaN semiconductor material;
- an upper clad layer (17B) formed on the active layer, and made of a second conductive GaN semiconductor material (p-type);
- an alloy layer (18a or 21) formed on the upper clad layer, and made of a hydrogen-storing alloy.

Regarding claim 2, Orita et al. discloses the alloy layer is made of one hydrogen-storing alloy selected from the group consisting of Mn-based hydrogen-storing alloys, Ln-based hydrogen-storing alloys, Ni-based hydrogen-storing alloys and Mg-based hydrogen-storing alloys [Col. 9, lines 16-21 and Col. 10, lines 33-42].

Regarding claim 3, Orita et al. discloses the Mn-based hydrogen-storing alloy is MnNiFe or MnNi [Col. 9, lines 16-21 and Col. 10, lines 33-42].

Regarding claim 4, Orita et al. discloses the La-based hydrogen-storing alloy is LaNi<sub>5</sub> [Col. 9, lines 16-21 and Col. 10, lines 33-42].

Regarding claim 5, Orita et al. discloses the Ni-based hydrogen-storing alloy is ZnNi or MgNi [Col. 9, lines 16-21 and Col. 10, lines 33-42].

Regarding claim 6, Orita et al. discloses the Mg-based hydrogen-storing alloy is ZnMg [Col. 9, lines 16-21 and Col. 10, lines 33-42].

Regarding claim 8, Orita et al. discloses the diode further comprising a first metal layer (18b) formed on the alloy layer, and made of a one metal selected from the group consisting of Au, Pt, Ir and Ta.

Regarding claim 11, Orita et al. discloses the diode further comprising a second metal layer (18b) formed on the alloy layer, and made of a one metal selected from the group consisting of Rh, Al and Ag.

#### *Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7, 9, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Orita et al. (PN 6,117,700).

Orita et al. discloses the claimed invention including the GaN-based semiconductor light emitting diode as explained in the rejection above. Orita et al. further discloses the total thickness of alloy layer 18a and the metal layer 18b to be about 100 nm. Orita et al. does not disclose the alloy layer and the metal layer have the thicknesses as claimed. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the alloy layer and the metal layer of Oriata et al. having the thicknesses as claimed by adjusting the thicknesses of the alloy layer and the metal layer in order to have the desired thickness.

### *Conclusion*

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung K. Vu whose telephone number is (571) 272-1666. The examiner can normally be reached on Tuesday-Friday 6:00-4:30, Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's acting supervisor, Steven Loke can be reached on (571) 272-1657. The Central Fax Number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

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Art Unit: 2811

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Vu

August 19, 2005

Hung Vu

Hung Vu

Primary Examiner